Use the given pair of functions to find the following values if they exist. If the value is not defined, write "undefined".

Exercise 1 $f(x) = x^2$, $g(x) = 2x + 1$

- $(g \circ f)(0) = \boxed{1}$
- $(f \circ g)(-1) = \boxed{1}$
- $(f \circ f)(2) = \boxed{16}$
- $(g \circ f)(-3) = \boxed{19}$
- $(f \circ g)\left(\frac{1}{2}\right) = \boxed{4}$
- $(f \circ f)(-2) = \boxed{16}$

Exercise 2 $f(x) = |x - 1|$, $g(x) = x^2 - 5$

- $(g \circ f)(0) = \boxed{-4}$
- $(f \circ g)(-1) = \boxed{5}$
- $(f \circ f)(2) = \boxed{0}$
- $(g \circ f)(-3) = \boxed{11}$
- $(f \circ g)\left(\frac{1}{2}\right) = \boxed{\frac{23}{4}}$
- $(f \circ f)(-2) = \boxed{2}$

Exercise 3 $f(x) = \sqrt{3 - x}$, $g(x) = x^2 + 1$

- $(g \circ f)(0) = \boxed{4}$
- $(f \circ g)(-1) = \boxed{1}$
- $(f \circ f)(2) = \boxed{\sqrt{2}}$
- $(g \circ f)(-3) = \boxed{7}$

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- $(f \circ g)\left(\frac{1}{2}\right) = \boxed{\frac{\sqrt{7}}{2}}$
- $(f \circ f)(-2) = \boxed{\sqrt{3-\sqrt{5}}}$

Exercise 4 $f(x) = \sqrt[3]{x+1}$, $g(x) = 4x^2 - x$

- $(g \circ f)(0) = \boxed{3}$
- $(f \circ g)(-1) = \boxed{6^{1/3}}$
- $(f \circ f)(2) = \boxed{(3^{1/3}+1)^{1/3}}$
- $(g \circ f)(-3) = \boxed{4(4^{1/3}) + 2^{1/3}}$
- $(f \circ g)\left(\frac{1}{2}\right) = \boxed{\frac{12^{1/3}}{2}}$
- $(f \circ f)(-2) = \boxed{0}$

Exercise 5 $f(x) = \frac{3}{1-x}$, $g(x) = \frac{4x}{x^2+1}$

- $(g \circ f)(0) = \boxed{\frac{6}{5}}$
- $(f \circ g)(-1) = \boxed{1}$
- $(f \circ f)(2) = \boxed{\frac{3}{4}}$
- $(g \circ f)(-3) = \boxed{\frac{48}{25}}$
- $(f \circ g)\left(\frac{1}{2}\right) = \boxed{-5}$
- $(f \circ f)(-2) = \boxed{undefined}$

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